The PTO argues that Ohba discloses a semiconductor structure including the claimed substrate, underlayer and semiconductor layer group, but acknowledges that Ohba does not disclose "a buffer layer on the underlayer comprising a second semiconductor nitride," as recited in pending claim 1 (see the last paragraph on Office Action page 2). The PTO is alleging, however, that "Ogawa discloses a semiconductor device wherein a GaN buffer layer with a thickness of 20 nm (col. 8, lines 47-48) [is] grown on the underlayer having a thickness of 3 μm (col. 8, lines 38-39)" (see the first paragraph on page 3 of the Office Action). This statement in the Office Action is not correct. In fact, Ogawa clearly teaches that a 20 nm-thick GaN buffer layer is first formed on a substrate and then a 3 μm-thick GaN underlayer *is formed on the buffer layer*.

With reference to Column 8, lines 38-54 of Ogawa, the following process is used to fabricate the semiconductor device disclosed by Ogawa:

> The cleaned substrate was placed into an MOCVD system to clean the substrate under an H_2 atmosphere at a high temperature of 1100° C . The temperature was lowered, and hydrogen (H_2) was flown at 10 L/min as a carrier gas while NH_3 and trimethylgallium (TMG) were supplied respectively at 5 L/min and 20 mol/min at 600° C., to cause growth of a low temperature GaN buffer layer having a thickness of approximately 20 nm.
>
> Supply of the TMG was then stopped temporarily, the temperature was raised again to 1050° C., and then the TMG was supplied at approximately 100 mol/min to grow an undoped GaN film to 3 μm in thickness for one hour. Supply of the TMG and NH_3 was then stopped, the temperature was lowered to room temperature, and the sapphire substrate having thereon the grown undoped GaN underlayer was taken out.

With reference to Fig. 6 of Ohba, the above citation from Column 8 of Ogawa clearly shows that if Ohba and Ogawa were combined as asserted in the Office Action, the resultant structure would include a 20 nm GaN buffer layer (as disclosed in Ogawa) formed on Ohba's substrate 10, beneath layer 11 (which the PTO alleges to be the claimed underlayer).

Conversely, as discussed above, pending independent claim 1 recites that a semiconductor element includes an Al-including underlayer on a substrate, a buffer layer *on the underlayer* and a Ga-including semiconductor layer group on the buffer layer. The stacking order of the claimed underlayer and buffer layer is opposite to the stacking order of the underlayer and buffer layer that would result from combining Ohba and Ogawa as asserted by the PTO. As such, even if Ohba and Ogawa were combined as asserted in the Office Action, the resultant structure would still fail to disclose or suggest each and every element recited in pending independent claim 1. This rejection is erroneous, and therefore, should be withdrawn.

In view of all of the foregoing, reconsideration and withdrawal of the §103(a) rejection over Ohba in view of Ogawa are respectfully requested.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

Stephen P. Burr
Reg. No. 32,970

December 9, 2004
Date

SPB:SWC:jms

BURR & BROWN
P.O. Box 7068
Syracuse, NY 13261-7068

Customer No.: 025191
Telephone: (315) 233-8300
Facsimile: (315) 233-8320